

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (currently amended) A method of writing data, comprising:
storing a first record in a disk storage unit wherein said first record includes an indication that a stripe of user data and parity data stored across a plurality of disk storage units potentially contains a parity inconsistency wherein each indication includes an identification of the stripe being indicated and wherein each identification includes a volume number and stripe number;
writing user data and parity data in said stripe indicated by said record; and
clearing said indication.
2. (original) The method of claim 1 wherein said first record contains a plurality of indications for a plurality of stripes across said plurality of disk storage units, that said plurality of stripes each potentially contains a parity inconsistency.
3. (original) The method of claim 2 wherein said plurality of disk storage units are arranged in a Redundant Array of Independent Disks type organization.
4. (cancelled)

5. (original) The method of claim 1 further comprising:

receiving from a first plurality of write processes in a first accumulation period, a plurality of indications wherein each indication from a write process indicates that a destination stripe across said plurality of disk storage units, associated with the write process, potentially contains a parity inconsistency; and

storing in response to said plurality of indications from said first plurality of write processes, in a second record a plurality of indications wherein each indication of said second record indicates that a destination stripe of said first plurality of write processes potentially contains a parity inconsistency.

6. (original) The method of claim 5 further comprising receiving a flush instruction from a first write process of said first plurality of write processes and in response to said flush instruction, writing said second record to a disk storage unit.

7. (original) The method of claim 6 further comprising sending, upon completion of said writing of said second record to a disk storage unit, a record write completion indication to each write process of said first plurality of write processes.

8. (currently amended) The method of claim 7 wherein a second write process of said first plurality of write processes writes user data and parity data in the destination stripe associated with the second write process, in response to the second write process receiving a record write completion indication, and sends a mark clean instruction for the destination stripe associated with the second write process.[[.]]

9. (original) The method of claim 8 further comprising receiving a mark clean instruction from the second write process of said first plurality of write processes and in response to said mark clean instruction, removing from said second record an indication that the destination stripe associated with the second write process potentially contains a parity inconsistency.

10. (original) The method of claim 9 further comprising:
in response to said flush instruction, writing said second record to a flush record;
receiving a second flush instruction from a third write process of said first
plurality of write processes; and

determining if the second record containing an indication that a destination stripe
associated with said third write process potentially contains a parity inconsistency, has
already been written to a disk storage unit.

11. (original) The method of claim 9 further comprising:
receiving from a second plurality of write processes after said flush instruction, a
second plurality of indications wherein each indication from a write process indicates
that a destination stripe across said plurality of disk storage units, associated with the
write process, potentially contains a parity inconsistency; and

storing in response to said plurality of indications from said second plurality of
write processes, in said second record a second plurality of indications wherein each
indication of said second plurality of indications of said second record indicates that a
destination stripe of said second plurality of write processes potentially contains a parity
inconsistency.

12. (original) The method of claim 11 further comprising receiving a third flush
instruction from a first write process of said second plurality of write processes and in
response to said third flush instruction, writing said second record to a disk storage unit,
wherein said clearing said indication includes writing said second record to a disk storage
unit in which the indication that the destination stripe associated with the second write
process potentially contains a parity inconsistency has been removed.

13. (original) The method of claim 12 wherein the first record is stored with a
first generation number in a first disk storage unit and the second record is stored with a
second generation number in a disk storage unit different from the first disk storage unit.

14. (currently amended) An article of manufacture comprising a device having a storage medium, the storage medium comprising machine readable instructions stored thereon to:

store a first record in a disk storage unit wherein said first record includes an indication that a stripe of user data and parity data stored across a plurality of disk storage units potentially contains a parity inconsistency, wherein each indication includes an identification of the stripe being indicated and wherein each identification includes a volume number and stripe number;

write user data and parity data in said stripe indicated by said record; and
clear said indication.

15. (original) The article of claim 14 wherein said first record contains a plurality of indications for a plurality of stripes across said plurality of disk storage units, that said plurality of stripes each potentially contains a parity inconsistency.

16. (original) The article of claim 15 wherein said plurality of disk storage units are arranged in a Redundant Array of Independent Disks type organization.

17. (cancelled)

18. (original) The article of claim 14 wherein the storage medium further comprises machine readable instructions stored thereon to:

receive from a first plurality of write processes in a first accumulation period, a plurality of indications wherein each indication from a write process indicates that a destination stripe across said plurality of disk storage units, associated with the write process, potentially contains a parity inconsistency; and

store in response to said plurality of indications from said first plurality of write processes, in a second record a plurality of indications wherein each indication of said

second record indicates that a destination stripe of said first plurality of write processes potentially contains a parity inconsistency.

19. (original) The article of claim 18 wherein the storage medium further comprises machine readable instructions stored thereon to receive a flush instruction from a first write process of said first plurality of write processes and in response to said flush instruction, write said second record to a disk storage unit.

20. (original) The article of claim 19 wherein the storage medium further comprises machine readable instructions stored thereon to send, upon completion of said writing of said second record to a disk storage unit, a record write completion indication to each write process of said first plurality of write processes.

21. (currently amended) The article of claim 20 wherein the storage medium further comprises machine readable instructions stored thereon for a second write process of said first plurality of write processes to write user data and parity data in the destination stripe associated with the second write process, in response to the second write process receiving a record write completion indication, and to send a mark clean instruction for the destination stripe associated with the second write process.[[.]]

22. (original) The article of claim 21 wherein the storage medium further comprises machine readable instructions stored thereon to receive a mark clean instruction from the second write process of said first plurality of write processes and in response to said mark clean instruction, remove from said second record an indication that the destination stripe associated with the second write process potentially contains a parity inconsistency.

23. (original) The article of claim 22 wherein the storage medium further comprises machine readable instructions stored thereon to:

in response to said flush instruction, write said second record to a flush record;
receive a second flush instruction from a third write process of said first plurality of write processes; and

determine if the second record containing an indication that a destination stripe associated with said third write process potentially contains a parity inconsistency, has already been written to a disk storage unit.

24. (original) The article of claim 22 wherein the storage medium further comprises machine readable instructions stored thereon to:

receive from a second plurality of write processes after said flush instruction, a second plurality of indications wherein each indication from a write process indicates that a destination stripe across said plurality of disk storage units, associated with the write process, potentially contains a parity inconsistency; and

store in response to said plurality of indications from said second plurality of write processes, in said second record a second plurality of indications wherein each indication of said second plurality of indications of said second record indicates that a destination stripe of said second plurality of write processes potentially contains a parity inconsistency.

25. (original) The article of claim 24 wherein the storage medium further comprises machine readable instructions stored thereon to receive a third flush instruction from a first write process of said second plurality of write processes and in response to said third flush instruction, write said second record to a disk storage unit, wherein said clearing said indication includes writing said second record to a disk storage unit in which the indication that the destination stripe associated with the second write process potentially contains a parity inconsistency has been removed.

26. (original) The article of claim 25 wherein the first record is stored with a first generation number in a first disk storage unit and the second record is stored with a second generation number in a disk storage unit different from the first disk storage unit.

27. (original) A system, comprising:

- at least one memory which includes an operating system and an application;
- a processor coupled to the memory;
- data storage having a plurality of disk storage units;
- a data storage controller for managing Input/Output (I/O) access to the data storage; and
- a device driver executable by the processor in the memory, wherein at least one of the application, operating system, and device driver is adapted to:
 - store a first record in a disk storage unit wherein said first record includes an indication that a stripe of user data and parity data stored across said plurality of disk storage units potentially contains a parity inconsistency, wherein each indication includes an identification of the stripe being indicated and wherein each identification includes a volume number and stripe number;
 - write user data and parity data in said stripe indicated by said record; and
 - clear said indication.

28. (original) The system of claim 27 wherein said first record contains a plurality of indications for a plurality of stripes across said plurality of disk storage units, that said plurality of stripes each potentially contains a parity inconsistency.

29. (original) The system of claim 28 wherein said plurality of disk storage units are arranged in a Redundant Array of Independent Disks type organization.

30. (cancelled)

31. (original) The system of claim 27, wherein said at least one of the application, operating system, and device driver is further adapted to:

receive from a first plurality of write processes in a first accumulation period, a plurality of indications wherein each indication from a write process indicates that a destination stripe across said plurality of disk storage units, associated with the write process, potentially contains a parity inconsistency; and

store in response to said plurality of indications from said first plurality of write processes, in a second record a plurality of indications wherein each indication of said second record indicates that a destination stripe of said first plurality of write processes potentially contains a parity inconsistency.

32. (original) The system of claim 31 wherein said at least one of the application, operating system, and device driver is further adapted to receive a flush instruction from a first write process of said first plurality of write processes and in response to said flush instruction, write said second record to a disk storage unit.

33. (original) The system of claim 32 wherein said at least one of the application, operating system, and device driver is further adapted to send, upon completion of said writing of said second record to a disk storage unit, a record write completion indication to each write process of said first plurality of write processes.

34. (currently amended) The system of claim 33 wherein said at least one of the application, operating system, and device driver is further adapted for a second write process of said first plurality of write processes to write user data and parity data in the destination stripe associated with the second write process, in response to the second write process receiving a record write completion indication, and to send a mark clean instruction for the destination stripe associated with the second write process.[[.]]

35. (original) The system of claim 34 wherein said at least one of the application, operating system, and device driver is further adapted to receive a mark clean instruction from the second write process of said first plurality of write processes and in response to said mark clean instruction, remove from said second record an indication that the destination stripe associated with the second write process potentially contains a parity inconsistency.

36. (original) The system of claim 35 wherein said at least one of the application, operating system, and device driver is further adapted to:
in response to said flush instruction, write said second record to a flush record;
receive a second flush instruction from a third write process of said first plurality of write processes; and
determine if the second record containing an indication that a destination stripe associated with said third write process potentially contains a parity inconsistency, has already been written to a disk storage unit.

37. (original) The system of claim 35 wherein said at least one of the application, operating system, and device driver is further adapted to:
receive from a second plurality of write processes after said flush instruction, a second plurality of indications wherein each indication from a write process indicates that a destination stripe across said plurality of disk storage units, associated with the write process, potentially contains a parity inconsistency; and

store in response to said plurality of indications from said second plurality of write processes, in said second record a second plurality of indications wherein each indication of said second plurality of indications of said second record indicates that a destination stripe of said second plurality of write processes potentially contains a parity inconsistency.

38. (original) The system of claim 37 wherein said at least one of the application, operating system, and device driver is further adapted to receive a third flush instruction from a first write process of said second plurality of write processes and in response to said third flush instruction, write said second record to a disk storage unit, wherein said clearing said indication includes writing said second record to a disk storage unit in which the indication that the destination stripe associated with the second write process potentially contains a parity inconsistency has been removed.

39. (original) The system of claim 38 wherein the first record is stored with a first generation number in a first disk storage unit and the second record is stored with a second generation number in a disk storage unit different from the first disk storage unit.